

CLAIMS:

1. A method of forming a closure for application to a container comprising the steps of:
 - 5 (a) providing a closure having a top panel and a skirt depending from the top panel;
 - (b) providing a disc in a position ready for insertion within the closure; and
 - (c) pressing said disc relatively into said closure such that at least a portion of said disc is positioned at least adjacent the top panel.
- 10 2. A method of forming a closure according to claim 1 wherein the closure further has an annular sealing fin extending inwardly and downwardly from an interior of the closure and being integrally formed with the top panel, the sealing fin being adapted to engage a rim of a container and be folded into a sealing arrangement with the rim and
15 at least a side of the finish of the container when the closure is secured to the container.
3. A method of forming a closure according to claim 2 wherein the method further comprises the following step:
 - (d) applying a fluid pressure to the disc such that the entire disc is forced into
20 a position at least adjacent the top panel.
4. A method of forming a closure according to claim 1 wherein the disc is a barrier disc.
- 25 5. A method of forming a closure for application to a container comprising the steps of:
 - (a) providing a closure having a top panel, a skirt depending from the top panel, and an annular sealing fin extending inwardly and downwardly from an interior of the closure and being integrally formed with the top panel, the sealing fin being
30 adapted to engage a rim of a container and be folded into a sealing arrangement with the rim and at least a side of the finish of the container when the closure is secured to the container;
 - (b) providing a disc in a position ready for insertion within the closure;
 - (c) pressing said disc relatively into said closure such that at least a portion of
35 said disc is positioned at least adjacent the top panel; and

(d) applying a fluid pressure to the disc such that the entire disc is forced into a position at least adjacent the top panel.

6. A method of forming a closure according to claim 5 wherein step (b) comprises
5 a step of cutting or punching a disc from a sheet or feedstock of disc material positioned adjacent a closure.

7. A method of forming a closure according to claim 6 wherein a cutter is used to form a circular disc for pressing into the closure.

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8. A method of forming a closure according to claim 6 wherein the step of pressing the disc relatively into said closure is performed concurrently with the cutting or punching step.

15 9. A method of forming a closure according to claim 7 wherein at least steps (b) and (c) are performed with the closure in an insertion station positioned beneath the sheet or feedstock of disc material, with the disc being moved relatively downwardly into the closure.

20 10. A method of forming a closure according to claim 5 wherein the step of pressing the disc into the closure in step (c) is performed using a tool having a plunger.

11. A method of forming a closure according to claim 10 wherein the plunger comprises a cylindrical tube, the tube having a lumen and a disc abutment surface.

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12. A method of forming a closure according to claim 11 wherein a pin extends through the tube of the plunger and also has an outer surface and a disc abutment surface.

30 13. A method of forming a closure according to claim 12 wherein a fluid flow passage extends through the tool, the passage being defined by the outer surface of the pin and the lumen of the plunger.

14. A method of forming a closure according to claim 13 wherein during step (c),
35 air is drawn relatively through the fluid flow passage away from the disc to form a region of relatively low pressure between the disc and the disc abutment surface of the

pin and/or plunger, the region of lower pressure serving to hold the disc to the tool as it is pressed into the closure.

15. A method of forming a closure according to claim 14 wherein step (d) comprises
5 forcing air through the fluid flow passage so as to force the disc fully into the closure and into abutment with the underside of the top panel.

16. A method of forming a closure according to claim 15 wherein the air flow forces
10 the periphery of the disc past the sealing fin that is extending inwardly and downwardly into the closure.

17. A method of forming a closure according to claim 5 wherein the disc is a barrier
disc.

15 18. An apparatus for positioning a disc in a closure, wherein the closure has a top panel, a skirt depending from the top panel, and an annular sealing fin extending inwardly and downwardly from an interior of the closure and being integrally formed with the top panel, the sealing fin being adapted to engage a rim of a container and be folded into a sealing arrangement with the rim and at least a side of the finish of the
20 container when the closure is secured to the container;

the apparatus comprising:

(a) an insertion station for supporting a closure for at least a portion of the disc positioning process; and

(b) a tool movable relative to the insertion station to relatively drive a disc
25 into the closure, the tool comprising a plunger for relatively pressing said disc into said closure such that at least a portion of the disc is adjacent the top panel, and a fluid flow passage through which fluid travels to apply fluid pressure to the disc and force the entire disc past the sealing fin and into a position at least adjacent the top panel.

30 19. An apparatus according to claim 17 wherein the insertion station is positioned beneath the tool when the disc is to be inserted into the closure, the closure being positioned such that the annular skirt extends upwardly from the top panel.

20. An apparatus according to claim 19 wherein the tool moves downwardly when
35 forcing the disc into the closure.

21. An apparatus according to claim 18 wherein the tool comprises a cutter positioned around the plunger for cutting a circular disc from a sheet or feedstock of disc material positioned adjacent the closure when the closure is in said insertion station.
- 5 22. An apparatus according to claim 21 wherein the tool is operable such that the cutter and plunger, at least initially, move together.
23. An apparatus according to claim 18 wherein the plunger is in the form of a
10 cylindrical tube having a lumen and a disc abutment surface.
24. An apparatus according to claim 23 wherein a pin extends through the lumen of the tube of the plunger and has an outer cylindrical surface and a disc abutment surface.
- 15 25. An apparatus according to claim 24 wherein the pin and the plunger are adapted to move into the closure concurrently.
26. An apparatus according to claim 24 wherein the fluid flow passage extends through the tool and is defined by the outer surface of the pin and the lumen of the
20 plunger.
27. An apparatus according to claim 26 wherein the fluid flow passage comprises a passage for air flow.
- 25 28. An apparatus according to claim 27 wherein the apparatus further comprises an air suction device and an air blower device, said fluid flow passage being in fluid communication with said air suction device and said air blower device.
29. An apparatus according to claim 28 wherein the air suction device and the air
30 blower device comprise the same device.
30. An apparatus according to claim 28 wherein on initial relative movement of the plunger, air is drawn through the fluid flow passage by the air suction device so as to hold the disc to the disc abutment surface as the plunger is firstly inserting the disc into
35 the closure so bringing at least a portion of the disc into said position at least adjacent the underside of the top panel.

31. An apparatus according to claim 30 wherein once the disc is in said position, the air blower device activates to blow air through the fluid flow passage and so force the disc, and particularly the periphery thereof, past the sealing fin and into a position
5 between the top panel and the sealing fin.

32. An apparatus according to claim 18 wherein the disc is a barrier disc.